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DEFENSE MAPPING AGENCY

FY 1995
BUDGET ESTIMATES

RDT&E, DEFENSE-WIDE



(FEBRUARY 1994)



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DEFENSE MAPPING AGENCY
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, DEFENSE-WIDE
FY 1995 BUDGET ESTIMATES
(\$ In Thousands)

SECUR CLASS ACTIVITY	BUDGET	RESEARCH PROGRAM ELEMENT	TITLE	FY 1993		FY 1994		FY 1995	
				TOA	TOA	TOA	TOA	TOA	TOA
(U) 7	7		Operational Systems Development	59,149		67,654		86,556	
(U) 7	3.5		Operational Systems Development (Other)	59,149		67,654		86,556	
(U) 7	3.5	0305139B	DMA MC&G Production System Improvement	53,022		56,334		67,008	
(U) 7	3.5	0305159B	Defense Reconnaissance Support Activities	6,127		11,320		19,548	
Total RDT&E - Direct				59,149		67,654		86,556	
Reimbursements				23,333		35,580		9,030	
TOTAL PROGRAM				82,482		103,234		95,586	

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INFORMATION

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EXHIBIT R-1
February 1994

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DEFENSE MAPPING AGENCY
FY 1995 RDT&E DESCRIPTIVE SUMMARY

Program Element: 0305139B
PE Title: DMA Mapping, Charting, and Geodetic (MC&G) Production Systems Improvements

Budget Activity: Operational Systems Development #7

A. (U) RESOURCES (\$ in Thousands)

Project Number and Title	FY 1993 Actual	FY 1994 Estimate	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	To Complete	Total Program
(U) New MC&G Products	10,230	12,560	15,060	18,400	11,150	5,000	6,100	Cont	Cont
(U) New MC&G Processes	39,066	38,789	41,505	42,660	41,093	23,470	30,590	Cont	Cont
(U) New MC&G Concepts	3,726	4,985	10,443	9,518	8,717	5,700	7,317	Cont	Cont
(U) TOTAL PROGRAM ELEMENT 0305139B	53,022	56,334	67,008	70,578	60,960	34,170	44,007	Cont	Cont

B. (U) BRIEF DESCRIPTION OF ELEMENT: This program element includes all RDT&E costs associated with improving the Defense Mapping Agency production system and any related MC&G development activities that foster new DMA products; introduce, improve or adapt DMA operational processes to enhance interfaces or functionality; and use new technology in the development of concepts that would enhance processes and products.

(U) Program element 0305139 is found in BA 7 (Operational Systems Development) because the effort funded under this program element supports the DMA MC&G production system.

C. (U) JUSTIFICATION FOR PROJECTS LESS THAN \$10.0 MILLION IN FY 1995: NA

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DEFENSE MAPPING AGENCY
FY 1995 RDT&E DESCRIPTIVE SUMMARY

Program Element: 03051392 Project Number: 100 Budget Activity: Operational Systems Development Date: Feb. 1994

PA Title: DMA Mapping, Charting, and Geodetic (MCIG) Production System Improvement

A. (U) RESOURCES (\$ in thousands)

Project Title	FY 1993 Actual	FY 1994 Estimate	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	To Complete	Total Program Cost
NEW MCIG PRODUCTS	10,230	12,560	15,060	18,400	11,150	5,000	6,100	Cost	Cost

B. (U) BRIEF DESCRIPTION OF MISSION REQUIREMENT AND SYSTEM CAPABILITIES: As a Combat Support Agency, DMA is responsible for the research, development, and production of new mapping, charting, and geodetic products to meet evolving customer requirements. Key product initiatives currently include: development of rapidly producible interim and substitute products for crisis support; development of digital products to support planned and fielded operational, mission planning, and C3I systems; development of a suite of digital products designed to support the analytical functions of Military Geographic Information Systems currently being integrated into Electronic Battlefield architectures; and development of hydrographic and bathymetric products in support of the Defense Hydrographic Initiative.

(U) (U) Program element 03051539 is found in RA 7 (Operational Systems Development) because the effort funded under this element supports the DMA MCIG production system.

C. (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

(U) FY 1993 ACCOMPLISHMENTS: Initial specifications and prototypes of Vector Smart Map and Digital Nautical Chart where delivered (\$5,840); Digital Point Positioning Data Base (DPPDB) program passed the preliminary design review and commenced the critical design stage of development (\$2,996); the Geographic Names Processing System (GNPS) was delivered which will allow digital production of geographic names in early FY 1994 (\$228); Master Seafloor Digital Data Base (MSDDB) operations concept has been approved and development continued (\$1,150).

(U) FY 1994 PLANS: Continue Vector Smart Map (VSM) and Digital Nautical Chart (DNC) development to define and prototype multi-resolution data layers (\$8,550); commence design of the MSDDB (\$1,000); deliver the DPPDB production line (\$1,520); perform requirements analysis for image based products (\$200); initiate design of Digital Products Database for the archival, transformation, packaging and transmission of MCIG datasets (\$1,290).

(U) FY 1995 Program: Implement the MSDDB (\$9,350); complete design of Digital Products Database (\$5,210); prototype of new image-based products (\$500).

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- (v) NON-PROPOSAL FY: 84/85; TASC; Intergraph; E&AR; other competitive and sole source contracts.
- (vi) CONTRACTS FY 1994 DESCRIPTIVE SUMMARY:

TECHNICAL CHANGES: Vector Product Format development activities consolidated under the Vector Product Initiative

SCHEMATIC CHANGES: Development of image-based products delayed until FY 1994; Implementation of DPPDS delayed until FY 1994.

COST CHANGES: None.

- (v) PROGRAM DOCUMENTATION: NA
- (v) RELATED ACTIVITIES: NA
- (v) OTHER AEROSPACE FUNDING:

	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
Procurement	1,400	7,717	5,925	4,425	1,000	3,200	6,400
- (v) INTERNATIONAL COOPERATIVE AGREEMENTS: None.
- (v) INVESTOR SCHEDULE: See Program Accomplishments and Plans

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DEFENSE MAPPING AGENCY
FY 1995 RDT&E DESCRIPTIVE SUMMARY

Program Element: 03051393 Project Number: 200 Budget Activity: Operational Systems Development Date: Feb. 1994
PE Title: DA Mapping, Charting, and Geodesy (MC&G) Production System Improvements

A. (U) RESOURCES (\$ in Thousands)

Project Title	FY 1993 Actual	FY 1994 Estimate	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	To Complete Estimate	Total Program Cost
NEW MC&G PROCESSES	39,066	38,789	41,505	42,660	41,093	23,470	30,590	Cont	Cont

B. (U) BRIEF DESCRIPTION OF PROJECT: As a Combat Support Agency, DMA is responsible for the establishing and maintaining the production processes required to support Service and Command MC&G requirements. Key initiatives within this project include development of capabilities to process, integrate and archive hydrographic and bathymetric source, production line integration of alternate image source and native hardcopy materials to alleviate source shortages, increase crisis response capabilities, and reduce collection costs; automation enhancements to increase throughput and decrease production time; and improvement to cataloging and distribution systems.

(U) Program element 03051391s found in BA 7 (Operational Systems Development) because the effort funded under this program element supports the DMA MC&G production system.

C. (U) JUSTIFICATION FOR PROJECTS IN FY 1994:

(U) FY 1993 ACHIEVEMENTS: Continued enhancements to MC&G Production System required for full production activation (\$30,889). Continued development of Hydrographic Source Assessment System (HYSAS) (\$1,443). Commenced source operability interface development (\$3,885). Initiated reconfiguration of mainframe computer architecture (\$2,849).

(U) FY 1994 PLANS: Complete modifications to the delivered DPS required for full production activation (\$24,749). Continue HYSAS and MSDBS development (\$2,000). Continue upgrade of Source Acquisition System interfaces (\$650). Develop processes for integration of alternate image source into production line (\$4,500). Initiate reconfiguration of mainframe computer architecture (\$3,890); implement Modernized Catalog System (\$3,000).

(U) FY 1995 PROGRAM: Complete HYSAS integration with the DPS (\$2,700). Complete implementation of new mainframe computer architecture (\$3,710). Continue upgrade of Source Acquisition System interfaces (\$730). Continue development of production line capability for alternate source exploitation and to enhance crisis support (\$18,475). Develop monocular data extraction capability (\$1,390). Initiate development of the Point Information Management System (\$1,500). Initiate DMA Distribution Management System productivity improvements (\$3,000).

D. (U) WORK PERFORMED BY: Intergraph; General Dynamics; E-Systems; General Electric; Hughes; DBA; SAIC; TASC; other competitive and sole source contracts.

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(U) COMPARISON WITH FY 1994 BUDGETARY SUMMARY:

TECHNICAL CHANGES: Modifications to the delivered DPS have been added in FY 1993 and FY 1994 to address integration and performance issues that have been identified during production implementation.

SCHEDULED CHANGES: Contract award for the Modernized Catalog System delayed until FY 1994.

COOP. CHANGES: None

E. (U) PROGRAM DOCUMENTATION: NA

F. (U) RELATED ACTIVITIES: NA

G. (U) OTHER APPROPRIATION FUNDS:

	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997	FY 1998	FY 1999
Procurement	10,651	29,116	22,885	24,837	27,990	10,469	11,978

H. (U) INTERNATIONAL COOPERATIVE AGREEMENTS: None

I. (U) MILESTONE SCHEDULE: See Program Accomplishments and Plans

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DEFENSE MAPPING AGENCY
FY 1995 BUDGET DESCRIPTIVE SUMMARY

Program Element: 0305139B Project Number: 300 Budget Activity: Operational Systems Development Date: Feb. 1994

PE Title: DMA Mapping, Charting, and Geodetic (MC&G) Production System Improvements

A. (U) RESOURCES (\$ in Thousands)

Project Title	FY 1993 Actual	FY 1994 Estimate	FY 1995 Actual	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	To Complete	Total Program Cost
(U) NEW MC&G CONCEPTS	3,726	4,985	10,443	9,518	8,717	5,700	7,317	Cont	Cont

B. (U) BRIEF DESCRIPTION OF PROJECT: As the DoD lead for MC&G, DMA is responsible for advancing the state of the art in MC&G production and exploitation technology; addressing the MC&G issues embedded in DoD Science and Technology thrust areas identified by OSD/Director Defense Research and Engineering; and participating in national and international MC&G standards initiatives. Concepts Initiatives in support of this mission include ongoing investigations of technologies for Geographic Information Systems, multi-sensor fusion, electronic data dissemination, media, and printing; sensor modeling; and development of standards for digital geographic data to reduce aggregate DoD data production and integration costs and maximize interoperability.

(U) Program Element 0305139 is found in RA 7 (Operational Systems Development) because the effort funded under this element supports the DMA MC&G Production system.

C. (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

(U) FY 1993 ACCOMPLISHMENTS: Continued MC&G utility software development (\$752). Developed prototypes based on on-going investigation of technologies (\$1,623). Took delivery of, and began testing of gravity modelling software which will be used in support of advanced inertial navigation equipment (\$355). Procurement began for equipment to upgrade gravimetric data processing and storage (\$311). Additional studies and concepts explored the use of multispectral imagery from LANDSAT to support DMA products (\$487). The publishing of military specifications (MIL-SPECs) promoted standardization across government and non-government organizations (\$198).

(U) FY 1994 PLANS: Continue technology studies (\$650). Continue studies of the design, integration, and exploitation of new sensors and imagery (\$3,085). Continue MC&G Utility Software development and implementation (\$500). Continue support to national and international standards organizations (\$750).

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(U) FY 1995 Program. Implement changes to improve use of primary source in DGA production process (\$4,263). Complete the modification to allow interim capabilities in the use of new data and technology in the DGA production system (\$1,500). Continue technology studies (\$1,000). Continue studies of the design, integration, and exploitation of new sensors and imagery (\$2,150). Continue MCsG Utility Software Environment (MCSE) development and implementation (\$800). Continue support to national and international standards organizations (\$750).

D. (U) WORK PERFORMED: Service laboratories, government research laboratories, competitive and sole source contractors

E. (U) COMPARISON WITH FY 1994 DESCRIPTIVE SUMMARY:

TECHNICAL CHANGES: None

SCHEDULED CHANGES: None

COST CHANGES: None

F. (U) PROGRAM DOCUMENTATION: N/A

G. (U) RELATED ACTIVITIES: N/A

H. (U) OTHER APPROPRIATION FUNDS:

	<u>FY 1993</u>	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>
Procurement	3,763	1,119	1,149	725	875	1,000	1,000

I. (U) INTERNATIONAL COOPERATIVE AGREEMENTS: None.

J. (u) MILESTONES SCHEDULE: See Program Accomplishments and Plans.

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DEFENSE MAPPING AGENCY
FY 1995 BRIEF DESCRIPTIVE SUMMARY

Program Element: 0305159B Project Number: 300 Budget Activity: Operational Systems Development Date: Feb. 1994
PE Title: Defense Reconnaissance Support Activities

A. (U) RESOURCES (\$ In Thousands)

Project Title	FY 1993 Actual	FY 1994 Estimate	FY 1995 Estimate	FY 1996 Estimate	FY 1997 Estimate	FY 1998 Estimate	FY 1999 Estimate	To Complete	Total Program
(U) Defense Reconnaissance Support Program									
	6,127	11,320	19,548	22,482	21,683	11,683	6,683	Cont	Cont
(U) TOTAL PROGRAM ELEMENT 0305159B									
	6,127	11,320	19,548	22,482	21,683	11,683	6,683	Cont	Cont

B. (U) BRIEF DESCRIPTION OF ELEMENT: This program evaluates developing or planned advanced systems for potential MCSC data exploitation. Developments address data extraction algorithms and operational scenarios. Additional activities include test and evaluation to ensure source material support of MCSC product requirements.

(U) Program element 0305159B is found in BA 7 (Operational Systems Development) because the effort funded under this element supports the DMA MCSC production system.

C. (U) PROGRAM ACCOMPLISHMENTS AND PLANS:

(U) FY 1993 ACCOMPLISHMENTS: Test, demonstrations, and training were conducted to support the DMA source collection activities (\$3,978). Utility studies continued for non-conventional source exploitation (\$1,379). Continued a source management study (\$770). These efforts are described in the Congressional Justification Book for Tactical Intelligence and Related Activities (TIARA).

(U) FY 1994 Plans: Continue operations and enhancements to existing quality control source assessment (\$4,441). Continue work on primary source improvement activities (\$6,879). These efforts are described in the TIARA.

(U) FY 1995 Program: Continue studies of the design, integration, and exploitation of new sensors and imagery (\$6,548). Begin the development of modifications to DMA's production system which would allow the exploitation of alternative sources of imagery (\$13,000). These efforts are described in the TIARA.

D. (U) Work Performed by: Private contractors and government research laboratories.

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E. (U) Other Appropriation Funds:

	<u>FY 1993</u>	<u>FY 1994</u>	<u>FY 1995</u>	<u>FY 1996</u>	<u>FY 1997</u>	<u>FY 1998</u>	<u>FY 1999</u>
Procurement	2,418	4,500	7,000	6,000	7,000	2,000	2,000
O&M	7,200	6,900	7,409	7,492	7,564	7,660	7,754

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